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A BIBLIOGRAPHY OF WEATHER MODIFICATION EXPERIMENTS.(U)

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by

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Morgan A./Hanson, Lawrence E./Barker, Charles L./Bach,
Edward A./Cooley and Charles H./Hunter

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A BIBLIOGRAPHY OF WEATHER MODIFICATION EXPERIMENTS

Morgan A. Hanson, Lawrence E. Barker, Charles L. Bach,
Edward A. Cooley, and Charles H. Hunter

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INTRODUCTION

This bibliography has been compiled within the Departments of Statistics and Meteorology at Florida State University as part of an Office of Naval Research sponsored investigation into the analysis of weather modification experiments. The compilation has involved a systematic search of all available relevant meteorological and statistical journals, reports of symposia, and cross checks of references in the sources. Any omissions are the result of oversight or the unavailability of relevant material.

Each experiment has been coded as follows below: (for example, 14-131-51-74 means that a crossover design was used with air generated silver iodide as the seeding agent. Rain gauges were used to measure the results, and the analysis was carried out by t-test).

Experimental Design

- | | |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 11 Two sample using control | 15 Single cloud seeding |
| 12 Two sample using historical records | 16 Paired cloud seeding |
| 13 Two sample using estimate of normal rainfall from meteorological parameters | 17 Multiple cloud seeding, with randomly selected unseeded clouds |
| 14 Crossover design | 18 Random seeding of convective bands |

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|------------------------------|---------------------|
| 19 Periodic Seeding | 21 Factorial design |
| 20 Areal Pattern recognition | 22 None given |

Type of Seeding

Prefix 1 - air generated

Prefix 2 - ground generated

Prefix 3 - both air and ground generated

- | | |
|--------------------------------------|-----------------------------------------------------|
| 31 Silver iodide | 38 Gasoline engine exhaust;
industrial pollution |
| 32 Dry ice | 39 Morpholine, Ethylamine |
| 33 Water | 40 Portland cement |
| 34 Sodium iodide | 41 Ammonium iodide |
| 35 Sodium chloride | 42 Ammonium nitrate |
| 36 Lead aerosols | 43 Urea |
| 37 Burning vegetation;
urban heat | 44 Phloroglucinol |
| | 45 Not specified |

Response Variables

- | | |
|-------------------------------------------------------|---------------------------------------------------------|
| 51 Rain gauges | 57 Radar - rainfall/hail/snow |
| 52 Stream flows; reservoir
runoff | 58 Radiosonde |
| 53 Snow measurements | 59 Visual; photographs; photo
grammetry; crop damage |
| 54 Ice counters | 60 General weather data |
| 55 Particle or drop collectors;
Spectrophotometers | 61 Cloud texture |
| 56 Radar - cloud census | 62 Hail indicators |

Statistical Techniques

- | | |
|-----------------------------------------------|-----------------------------------|
| 71 Regression | 81 Multivariate analysis |
| 72 Correlation | 82 Analysis of variance |
| 73 z-test | 83 Analysis of covariance |
| 74 t-test | 84 Pattern analysis |
| 75 Chi-square test | 85 Rank sum test |
| 76 F-test | 86 Sign test; Signed rank
test |
| 77 C(α) test | 87 Squared rank sum test |
| 78 Single ratio test | 88 Rank Correlation |
| 79 Double ratio test;
Composite ratio test | 89 Kolmogorov-Smirnov test |
| 80 Median ratio test | 90 None given |

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AUTHOR INDEX

- Adderley, E. E. 1, 2, 3, 130, 131, 132
 Akimov, N. M. 4
 Aleman, P. M. 48
 Allee, P. A. 98
 Avichai, Y. 50
- Bartin, C. 5
 Battan, L. J. 6
 Baughman, R. C. 88
 Baughman, R. G. 7, 88
 Beaumont, R. T. 8
 Berkeley, Joyce 156
 Bethwaite, F. D. 9, 131, 132
 Biondini, Ronald 10, 155, 156
 Biswas, K. R. 11, 12, 26, 100
 Boardman, J. H. 30
 Bowen, E. G. 13, 14, 15
 Boyd, E. I. 95
 Braham, Roscoe 16
 Brier, Glenn W. 17, 120
 Brown, Keith J. 18, 19, 20, 21, 142
 Brown, Stanley 111, 112
 Buell, C. Eugene 22
- Cain, D. E. 33, 34
 Carr, John T. 110
 Chang, L. P. 35
 Chanson, Stanley 23, 62, 71
 Chappel, Charles F. 24, 25, 56, 93, 94
 Chatterjee, R. M. 26, 72
 Chin, Ho-Chik 101
 Church, J. F. 144
 Clark, R. S. 113
 Cooper, L. W. 27, 91
 Cotton, Gerald F. 123
 Crown, Edwin 86
 Crozier C. L. 54
 Cundiff, Stuart 58
 Cunningham, R. M. 28
- Davis, L. G. 109
 Dennis, A. S. 12, 29, 30, 31, 32, 33, 34, 35, 78, 79, 117
 Dessens, Jean 36
- Eden, Jane C. 127
 Elliot, Robert D. 18, 19, 21, 37, 38, 39, 40, 41, 42, 43, 44, 45, 142
 Enger, Isadore 17
 Finnegan, William G. 63, 113
 Flueck, John A. 47
 Foehner, Olin H. 111, 112
 Fournier d'Albe, E. M. 48
 Fraser, D. 106
 Friedman, Howard A. 21
 Fritch, Ronald 49
 Fritsch, James M. 57
 Fuquay, Donald 7
 Gabriel, K. R. 50, 51
 Gagin, J. 52
 Gaivoronski, I. I. 53, 146
 Gelhaus, J. W. 32
 Glass, Morton 28
 Godson, W. L. 54
 Goyer, Guy G. 55
 Grant, Lewis O. 56, 57, 93, 94, 99
 Gromova, T. N. 53
 Hackett, F. 75
 Hall, Ferguson 58
 Halvorson, J. L. 114
 Hartzell, Curtis 143
 Hawkins, Harry F. 85
 Heffernan, K. J. 9
 Heimback, James A. 138
 Henderson, T. J. 58, 59, 60, 61, 62, 63
 Hicks, James R. 64
 Hill, G. E. 65
 Hindman, E. E. 113
 Hirsch, J. H. 33, 35
 Hobbs, Peter V. 66, 67
 Holland, J. D. 54
 Howell, Wallace E. 68, 69, 70
 Huff, F. A. 71, 116
 Huggins, Arlen 86
 Isaka, H. 5
 Jones, Richard 151

- Kanuga, K. K. 11, 82
 Kapoor, R. K. 11, 72, 73, 81
 Keyes, C. G. 74, 75
 Khemani, L. T. 82
 Klazura, Gerrard 76
 Knollenberg, Robert S. 77
 Koscielski, Alexander 30, 78, 79, 117
 Kraus, E. B. 80
 Krishna, K. 72, 81, 82
 Kriege, D. F. 29
 Kyle, T. G. 114
- Lacaux, Jeanne Pierre 36
 Lang, William A. 38
 Langmuir, Irving 83
 Lee, M. F. 84
 Lehman, D. E. 149
 Leskov, B. N. 4
 Levin, L. M. 146
 Lewis, Billy M. 85
 Lobodin, T. V. 53
 Long, Alexis 86
 Lopez, Manuel 69
 Lunn, G. W. 97
- MacCready, Paul 87, 88, 148
 Malkus, Joanne S. 89
 Marwitz, John D. 90
 Mather, G. K. 91
 McCutchan, M. H. 92
 Mielke, Paul 7, 56, 57, 93, 94
 Miller, A. H. 123
 Miller, J. R. 34, 95
 Mitchell, V. L. 96
 Momin, G. A. 82
 Mooney, Margaret L. 97
 Morgan, Griffith M. 23, 98
 Mukherjee, B. K. 82
 Mulvey, Gerald J. 99
 Murty, A. S. R. 72, 81
 Murty, Bh. V. Ramana 26, 72, 81, 82, 100
 Neiburger, M. 101
 Neumann J. 52
 Neyman, Jerzy 102, 103
 Nikandrov, V. Ja. 53
 Núñez, J. M. 104
- Oddie, B. C. V. 105
 Olsen, Anthony R. 127
 Orr, John L. 106
- Parungo, Farn P. 107
 Peterson, G. A. D. 30
 Pettit, K. G. 106
 Plooster, M. N. 108
- Radke, L. F. 66
 Rhea, J. Owen 107, 109
 Riggio, Robert F. 110
 Rottner, D. 74, 111, 112
- Sambataro, George 155
 St. Amand, Pierre 42, 113
 Sand, W. R. 114
 Saunders, C. P. R. 27
 Sax, Robert I. 115
 Scheffee, R. S. 121
 Schickedanz, Paul 116
 Schleusener, R. A. 95, 117
 Schock, M. R. 31, 32, 117
 Schroeder, Melvin J. 76
 Schwaller R. L. 34
 Scott, Elizabeth I. 102, 103
 Seregin, Yu. A. 146
 Shaffer, Russel W. 45
 Sharma, S. K. 72, 82
 Shishkin, M. S. 53
 Shumway, S. E. 66
 Siliceo, C. P. 118
 Simpson, Joanne 119, 120, 121, 122, 123, 124, 125, 126, 127, 154, 155, 156
 Simpson, Robert 89, 119
 Slusher, T. W. 121
 Smith, C. G. 128
 Smith, E. J. 9, 129, 130, 131, 123, 133, 134, 136
 Smith, Jerome 103
 Soulage, G. 5
 Spar, Jerome 135
 Spreafichi, M. I. 104
 Squires, P. 80, 136
 Steele, Roger 121
 Steinberg, Raya 50
 Stover, F. D. 74
 Summers, Peter W. 137
 Super, A. B. 96, 138

Takeda, K. 139, 140
Thompson, John R. 20, 21, 39, 40,
42, 43, 44, 46, 141, 142

Toropova, N. V. 53
Treddenick, D. S. 91
Twomey, S. 1

Vardiman, Larry 143
Vasilevskis, Marija 102
Vickers, William 144
Volkov, A. D. 4
Vonnegut, Bernard 145
Vulfson, N. I. 146

Walsh, D. T. 130
Warburton, J. A. 9

Warner, J. 1473
Weinstein, A. I. 64, 148
White, Robert. M. 124
Wilkins, R. D. 74
Williams, M. C. 74
Wisniewski, Joe 150
Wood, Janet M. 55
Woodcock, A. H. 151
Woodley, William L. 121,
123, 124, 125, 126, 152,
153, 154, 155, 156
Wright, T. L. 113

Yaw, R. H. 96

Zatsepina, L. P. 146
Zinin, B. I. 53, 146

EXPERIMENTAL DESIGN INDEX

CROSSOVER DESIGN 5, 6, 23, 31, 35, 50, 51, 54, 56, 65, 78,
81, 97, 103, 130, 135

FACTORIAL DESIGN 144

SINGLE CLOUD SEEDING 4, 9, 12, 15, 28, 49, 53, 60, 61, 63,
80, 88, 89, 98, 106, 113, 119, 120, 122, 125, 129, 136, 146,
153

MULTIPLE CLOUD SEEDING 13, 17, 26, 44, 121, 122, 123, 126,
142, 148, 152, 154

PAIRED CLOUD SEEDING 149

PATTERN RECOGNITION 92, 139

PERIODIC SEEDING 67, 83

RANDOM SEEDING OF CONVECTIVE BANDS 20, 39, 40, 41, 42, 43,
46,
141

TWO SAMPLE WITH CONTROL REGION 1, 2, 7, 8, 10, 11, 16, 17,
19, 21, 24, 25, 27, 29, 30, 32, 33, 34, 37, 45, 47, 48, 52,
53, 55, 57, 58, 62, 70, 71, 72, 73, 74, 75, 79, 82, 85, 86,
87, 90, 93, 94, 95, 96, 100, 101, 102, 104, 108, 109, 110,
111, 115, 117,
118, 124, 127, 131, 132, 133, 134, 138, 143, 147, 150, 151,
155,
156

TWO SAMPLE USING HISTORICAL DATA AS CONTROL: 14, 36, 38, 59,
66, 68, 91, 112, 116, 145, 151

TWO SAMPLE USING ESTIMATE OF RAIN FALL: 22, 105

SEEDING AGENT INDEX

SILVER IODIDE 1, 2, 3, 5, 6, 7, 8, 9, 10, 14, 15, 18, 19,
20, 21, 23, 24, 25, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37,
38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 50, 51, 54, 56, 59,
60, 61, 62, 65, 67, 69, 74, 75, 78, 79, 83, 86, 88, 89, 90,
91, 93, 94, 95, 96, 97, 99, 101, 102, 103, 105, 109, 110, 111,
112, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125,
126, 127, 130, 131, 132, 133, 134, 135, 137, 138, 140, 142,
145, 148, 149, 152, 153
154, 155, 156

DRY ICE 8, 49, 58, 80, 106, 129, 136, 139, 140, 144, 145

WATER 13, 15, 71, 113, 146

SODIUM IODIDE 9, 11, 12, 29, 34, 42, 57, 61, 79

SODIUM CHLORIDE 26, 30, 48, 73, 81, 82, 100

LEAD AEROSOL 104, 107

BURNING VEGETATION, URBAN HEAT 71, 84, 128, 147, 151

ENGINE EXHAUST, POLLUTION 66, 71, 98, 146

MORPHOLINE, ETHYLAMINE 63

AMMONIUM IODIDE 43, 44, 46, 61, 142

UREA 28, 77, 113

PORTLAND CEMENT 85

AMMONIUM NITRATE 113

PHLOROGLUCINOL 16

RESPONSE VARIABLE INDEX

RAIN GAUGES 1, 3, 11, 15, 17, 18, 19, 20, 21, 22, 25, 26,
29, 31, 32, 33, 34, 35, 37, 39, 40, 41, 42, 43, 44, 45, 46,
47, 48, 50, 51, 52, 54, 57, 65, 69, 70, 72, 73, 74, 75, 78,
79, 81, 87, 93, 95, 96, 97, 100, 101, 102, 103, 111, 112, 116,
118, 125, 127, 130, 131, 132, 133, 134, 135, 138, 141, 142,
147, 151, 154, 155

STREAM RUNOFF 38, 58, 59, 68

SNOW MEASUREMENT 8, 24, 38, 67, 108, 109, 130

ICE COUNTERS 107, 115

PARTICLE COUNTERS, SPECTROPHOTOMETERS 4, 9, 27, 66, 79, 82,
86, 88, 98, 107, 115, 150

RADAR-CLOUD CENSUS 6, 124

RADAR-RAINFALL/HAIL/SNOW 4, 10, 12, 14, 20, 23, 26, 28, 30,
32, 33, 46, 47, 49, 53, 57, 59, 60, 67, 76, 79, 80, 81, 89,
91, 96, 100, 110, 119, 122, 123, 125, 126, 136, 137, 139, 140,
146, 148, 149, 150, 152, 153, 154, 155, 156

RADIOSONDE 42, 52, 75, 91

GENERAL WEATHER DATA 2, 71, 83, 92, 105

VISUAL OR PHOTOGRAPHIC EVALUATION; CROP DAMAGE 5, 7, 13, 14,
15, 16, 23, 28, 36, 49, 53, 58, 60, 61, 62, 63, 77, 80, 84,
85, 89, 106, 113, 119, 120, 121, 128, 129, 136, 137, 141, 143,
145, 146, 148, 149

HAIL INDICATORS 55, 104, 117

CLOUD TEXTURE 144

INDEX OF STATISTICAL TECHNIQUES

REGRESSION 4, 17, 22, 33, 38, 39, 45, 58, 59, 66, 68, 76,
83, 87, 97, 108, 117, 118, 122, 123, 130, 131, 132, 134, 135

CORRELATION 2, 50, 59, 62, 70, 72, 73, 115, 148

Z-test 68, 152

t-test 11, 59, 69, 76, 86, 92, 100, 125, 126, 132, 148, 150,
152, 153, 155

χ^2 -test 2, 18, 20, 34, 47, 57, 86

F-test 34, 45, 52, 76, 83, 86, 92, 97, 102, 150, 155

C(α) TEST 101, 103

SINGLE RATIO TEST 43, 44, 45, 46, 50, 54, 130, 142

DOUBLE RATIO/COMPOSITE RATIO TEST 24, 26, 39, 40, 41, 42,
43, 46, 149

MEDIAN RATIO TEST 11, 20

MULTIVARIATE ANALYSIS 127

ANOVA 72, 73, 123

ANCOVA 8, 29, 33, 69, 78, 97, 122, 155, 156

PATTERN ANALYSIS 71

RANK SUM TEST 5, 6, 7, 9, 11, 19, 21, 25, 34, 36, 40, 41,
42, 43, 44, 46, 47, 51, 52, 56, 57, 70, 74, 75, 78, 81, 93,
94, 95, 100, 104, 111, 112, 117, 122, 123, 125, 126, 131, 138,
143, 152, 153, 154, 155

SIGN TEST, SIGNED RANK TEST 116, 144

SQUARED RANK TEST 7, 31, 32, 74, 75, 93, 94, 96, 99, 109,
111, 112, 126

RANK CORRELATION 151

KOLMOGOROV-SMIRNOV TEST 86, 96, 99, 104, 144

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